

5. A sulphurous acid generator apparatus comprising:

a first conduit for conducting sulphur dioxide gas and means for drawing the sulphur dioxide gas through the first conduit;

a second conduit for conducting water;

a third conduit comprising:

a blending portion and at least one contact containment portion,

the blending portion comprising means for bringing the sulphur dioxide gas conducted through the first conduit and the water conducted through the second conduit into contained, codirectional flow whereby the sulphur dioxide gas and water are brought into contact with each other,

the contact containment portion(s) comprising a passageway through which the sulphur dioxide gas and the water may codirectionally flow in contact with each other and in which at least a portion of the sulphur dioxide gas may react with water to form sulphurous acid,

means for discharging the sulphurous acid and unreacted sulphur dioxide gas from the third conduit,

the first and third conduits defining an open system thereby avoiding subjecting the sulphur dioxide gas to a system pressure;

a mixing tank for further maintaining sulphur dioxide in contact with system fluid;

primary means for discharging the sulphurous acid;

the mixing tank defining an outlet through which the sulphurous acid may pass to exit the mixing tank, the mixing tank having a lid with an exhaust vent through which undissolved gases may exit the mixing tank;  
a vent conduit in communication with the exhaust vent and means for drawing the sulphur dioxide gas through the vent conduit;  
a supplemental water conduit for conducting a supply of water;  
a fourth conduit comprising:

a blending portion and at least one contact containment portion;

the blending portion comprising means for bringing the sulphur dioxide gas conducted through the vent conduit and the water conducted in the supplemental water conduit into contained, codirectional flow whereby the sulphur dioxide gas and water are brought into contact with each other,

the contact containment portion(s) comprising a passageway through which the sulphur dioxide gas and the water may codirectionally flow in contact with each other and in which at least a portion of the sulphur dioxide gas may react with the water to form sulphurous acid,

secondary means for discharging sulphurous acid.

6. The apparatus of claim 5 further comprising a vent stack in communication with the secondary means for discharging sulphurous acid, the vent stack comprising a tower containing water and exhausting gases in countercurrent flow.

7. The apparatus of claim 5 wherein further comprising a corresponding hopper and burn chamber connected to the first conduit, the hopper and burn chamber constructed from a concrete comprising one part Lumnite® cement and three parts aggregate wherein the aggregate comprises pea-sized medium shale in an amount ranging from about 0 parts to about 3 parts and crushed/fine shale in an amount ranging from about 0 parts to about 3 parts.
8. The apparatus of claim 5 further comprising a burn chamber connected to the first conduit and means for dampening the flow of air into the burn chamber.
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